

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-2 (canceled).

3. (original) A thermal processing apparatus to heat a substrate by irradiating light to said substrate, comprising:

a light source consisting of a plurality of lamps arranged in a plane;

a hold element to hold a substrate at a location below said light source; and

a diffusion plate that is disposed between said light source and a substrate held by said hold element such that they are substantially parallel with one another, said diffusion plate diffusing light emitted from each of said plurality of lamps and directing it to said substrate;

wherein in said diffusion plate, the light transmittance of a lamp corresponding part located in a vertical immediate downward direction of each of said plurality of lamps is lower than the light transmittance of an inter-lamp corresponding part located between said lamp corresponding parts adjacent to each other.

4. (original) The thermal processing apparatus according to claim 3 wherein the light transmittance increases gradually from a central position of said lamp corresponding part to a central position of said inter-lamp corresponding part in said diffusion plate.

5. (original) The thermal processing apparatus according to claim 3 wherein the light transmittance of an end corresponding part located outside space in a vertical immediate downward direction of an arrangement of said plurality of lamps in said diffusion plate is higher than the light transmittance of said lamp corresponding part.

6. (currently amended) A thermal processing apparatus to heat a substrate by irradiating light to said substrate, comprising:

a light source consisting of a plurality of flash lamps arranged in a plane;
a hold element to hold a substrate at a location below said light source; and
a diffusion plate that is disposed between said light source and a substrate held by said hold element such that they are substantially parallel with one another, said diffusion plate diffusing light emitted from each of said plurality of flash lamps and directing it to said substrate, wherein

in said diffusion plate, the light transmittance of a lamp corresponding part located in a vertical immediate downward direction of each of said flash lamps is lower than the light transmittance of an inter-lamp corresponding part located between said lamp corresponding parts adjacent to each other.

Claim 7 (canceled).

8. (currently amended) The thermal processing apparatus according to claim [[7]]6 wherein

the light transmittance increases gradually from a central position of said lamp corresponding part to a central position of said inter-lamp corresponding part in said diffusion plate.

Claim 9 (canceled).

10. (original) The thermal processing apparatus according to claim 6 wherein
said diffusion plate is a glass plate in which a geometrical pattern in a ground glass state is formed in a region located above parts other than an edge part of a substrate held by said hold element.

11. (original) The thermal processing apparatus according to claim 10 wherein said geometrical pattern is a stripe pattern.

12. (original) The thermal processing apparatus according to claim 10 wherein said geometrical pattern is a parallel crosses pattern.

13. (original) The thermal processing apparatus according to claim 10 wherein said geometrical pattern is a woven bamboo pattern.

14. (original) The thermal processing apparatus according to claim 6 wherein each of said flash lamps is a xenon flash lamp, and said hold element has an assist heating element to preheat a substrate to be held.

15. (new) A thermal processing apparatus to heat a substrate by irradiating light to said substrate; comprising:

a light source comprising a plurality of flash lamps arranged in a plane;

a hold element to hold a substrate at a location below said light source; and

a diffusion plate that is disposed between said light source and a substrate held by said hold element such that they are substantially parallel to one another, said diffusion plate diffusing light emitted from each of said plurality of flash lamps and directing it to said substrate;

wherein in said diffusion plate, the light transmittance of a center corresponding part located in a vertical immediate downward direction of an arrangement of said plurality of flash lamps is lower than the light transmittance of an end corresponding part located outside said center corresponding part.

16. (new) The thermal processing apparatus according to claim 15 wherein said diffusion plate is a glass plate in which a geometrical pattern in a ground glass state is formed in a region located above parts other than an edge part of a substrate held by said hold element.

17. (new) The thermal processing apparatus according to claim 15 wherein each of said plurality of flash lamps is a xenon flash lamp, and said hold element has an assist heating element to preheat a substrate to be held.